

WHAT IS CLAIMED IS:

1. An analysis system of matter adhered to an inside wall of a vessel comprising a guiding apparatus and a Raman analysis apparatus;

said guiding apparatus including a main body portion, a flexible insert portion extending from said main body portion and having a window formed in a distal end thereof, and a channel extending through said main body portion and insert portion and reaching said window, said insert portion being able to be inserted into said vessel;

said Raman analysis system including a flexible insert cable to be inserted into said channel and whose distal end is faced with said window, an excitation optical fiber and a light receiving optical fiber which are both received in said insert cable, a light source connected to a basal end of said excitation optical fiber, and a spectroscope connected to a basal end of said light receiving optical fiber; and

an excitation light emitted from said light source being projected through said window via said excitation optical fiber and Raman scattered by impinging on said matter adhered to the inside wall of said vessel, said scattered light being made incident to said window and spectrally analyzed by said spectroscope via said light receiving optical fiber, and thus said matter adhered to the inside wall of said vessel being analyzed.

2. An analysis system of matter adhered to an inside wall of a vessel according to claim 1, wherein said Raman analysis apparatus includes a single number of said excitation optical fiber and a plural number of said light receiving optical fibers; and

at a distal end portion of said insert cable, said single number of excitation optical fiber is arranged at a central area thereof and said plural number of light receiving optical fibers are arranged in such a manner as to surround said excitation optical fiber.

3. An analysis system of matter adhered to an inside wall of a vessel according to claim 2, wherein said insert cable is provided at the distal end with a transparent light receiving plate having a center hole and against which distal ends of said plural number of light receiving optical fibers are abutted, and with a transparent excitation small piece fitted into said center hole and against which a distal end of said excitation optical fiber is abutted;

a film-like excitation optical filter for cutting all of said excitation light only excepting a light having a predetermined wavelength is adhered to a surface of said excitation small piece which is faced with said excitation optical fiber; and

a film-like light receiving optical filter for cutting only said light having a predetermined wavelength is adhered to a surface of said light receiving plate which is faced with said light receiving optical fibers.

4. An analysis system of matter adhered to an inside wall of a vessel according to claim 1, wherein said Raman analysis apparatus includes a single number of said excitation optical fiber and a plural number of said light receiving optical fibers; and

said plural number of light receiving optical fibers are bundled at a distal end of said insert cable, said excitation optical fiber is arranged at an outer side in a radial direction of said bundle of light receiving optical fibers, and an optical means for deflecting an optical axis of said excitation light in a direction intersecting a center axis of said bundle of light receiving optical fibers is disposed at a distal end of said excitation optical fiber.

5. An analysis system of matter adhered to an inside wall of a vessel according to claim 4, wherein a distal end face of said excitation optical fiber is slanted with respect to an axis of said excitation optical fiber and said distal end face is provided as said optical means.

6. An analysis system of matter adhered to an inside wall of a vessel according to claim 1, wherein a film-like excitation optical filter for cutting all of said excitation light only excepting a light having a predetermined wavelength is adhered to a distal end face of said excitation optical fiber, and a film-like light receiving optical filter for cutting only said light having a predetermined wavelength is adhered to a distal end face of said light receiving optical fiber.

7. An analysis system of matter adhered to an inside wall of a vessel according to claim 1, wherein excitation optical filters for cutting all of said excitation light only excepting a light having a predetermined wavelength are each disposed between said excitation optical fiber and said light source and disposed at a distal end face of said excitation optical fiber, respectively and a light receiving optical filter for cutting only said light having a predetermined wavelength is disposed at a distal end face of said light receiving optical fiber.

8. An analysis system of matter adhered to an inside wall of a vessel according to claim 1, wherein said guiding apparatus is an endoscope through which an interior of said vessel can be observed.